# Nature's Collage

Siming Guo, Washington State University

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## Introduction

This design was inspired by 1920s fashion, a time that saw the rise of the "New Woman," defined as a generation of women who challenged traditional gender norms through their political and social demands (Rabinovitch-Fox, 2015). Starting in the 1910s, women's loosely fitted garments, such as kimono-style dresses influenced by oriental silhouettes and motifs, allowed for greater comfort and ease of movement (Kim & DeLong, 1992). The integration of textile design into apparel design is always fascinating. Sunflowers were a popular subject in Vincent Van Gogh's still-life paintings (Hendriks & Miliani, 2019), providing further inspiration for incorporating natural motifs into contemporary fashion. The designer aims to create garments that represent the New Woman's independent spirit by combining sunflower and leaf motifs with a loosely fitted garment style.

Apparel companies have integrated 3D simulation technology into their product development because of the benefits, such as shortened lead times and improved cost efficiency (Hwang-Shin & Lee, 2020). Therefore, this project includes the textile designs and their placement on the garment using 3D simulation technology. Developed and popularized by IDEO and its CEO Tim Brown, Design Thinking methodology involves five key stages: empathize, define, ideate, prototype, and test (Brown, 2008). Applying the Design Thinking methodology, the designer empathized with the historical and cultural context of 1920s fashion, defined the problem of merging traditional aesthetics with contemporary functionality, ideated various design solutions for the textile and apparel product development, prototyped using computer-aided design (CAD) technology for patternmaking and laser engraving, and tested the designs through 3D simulations and fabric trials. This project implemented CAD technology through a process that ensures the garments meet both aesthetic and cohesive requirements.

## Design Process

The design process emphasizes the importance of connecting artistic vision with CAD technology. Initially, the designer created a motif of leaves using Adobe Illustrator (Figure 1). This digitized motif was then divided into different parts and combined with sunflowers to generate various repeat patterns in Adobe Photoshop. The textile design was further developed for different colorways. One of these motifs, depicting leaves and sunflowers, is shown in Figure 2. Finally, the textile design was knitted using the Mayer & Cie OVJA 1.6E-3WT knitting machine, employing 100% cotton, 30/1 for all yarns. The gauge was 18, with a total of 1,728 needles. The fabric style consisted of a 4-color jacquard with pique-birdseye backing and featured four colors: red, yellow, green, and light blue.

The silhouette of the dress is influenced by 1920s fashion but has been updated to align with current trends. The flat pattern was created in Browzwear VStitcher, and the pattern pieces were stitched for 3D simulation over a medium-sized virtual model. The patterns developed in

Browzwear VStitcher can connect with Adobe Illustrator and Adobe Photoshop. The textile design created in Adobe Photoshop was mapped onto the dress in Browzwear VStitcher. Different motifs were carefully positioned and simulated in Browzwear VStitcher to assess the appearance and modified to achieve a better look (Figure 3). In addition, Figure 4 shows the dress on a real model.

To better embody the New Woman's spirit, the designer developed a jacket to match the dress. The silhouette of this jacket is influenced by "hippari," a Japanese style that resembles a shorter kimono worn by women and features a wrap-over front and a collar that extends to the hem. Similar to the kimono, it follows the left-over-right wrapping form and provides a comfortably loose fit. Hippari sleeves may have either straight or curved bottom edges like traditional kimono styles, but both the garment and sleeves are never excessively long (Dobson, 2018). The designer created and simulated the flat pattern of the jacket, adapted from Dobson's patternmaking for hippari, in Browzwear VStitcher as well.

The jacket is made of 100% cotton in a coordinating light blue color. The textile design, developed in Adobe Illustrator, was engraved onto this lightweight denim. The laser engraving resulted in lighter colors on the fabric. The designer added white top stitches to the denim and created pleats and a smocking effect on the front plackets and sleeves. This effect generated a texture contrast with the bodice part and the knitted dress. Overall, the surface design aimed to achieve aesthetic complexity.

**Design Contribution**

This project captures the beauty of sunflowers and leaves in the design and demonstrates how CAD technology can assist in textile and apparel product development. It aligns with Hwang-Shin and Lee's (2020) findings that most sourcing agents/contractors view 3D virtual fitting as an effective way to develop garments and facilitate communication with overseas apparel companies. The process involves thoroughly testing yarns for knitting and fabrics for laser engraving to ensure the garment is made with thoughtful design and planning. By incorporating elements of the "New Woman" from the 1920s and kimono-style apparel, the project bridges past and present and offers a fresh perspective on traditional styles.

This design showcases the seamless integration of historical influences with the creation of garments that are practical for contemporary fashion. Guided by the principles of Design Thinking, the designer values historical significance while embracing CAD technology advancements. The adoption of Browzwear VStitcher for patternmaking and 3D simulation also reflects the designer's commitment to sustainability and technical innovation. This approach could be useful for future design projects in the apparel industry.

***Figure 1.*** Drawing created in Adobe Illustrator

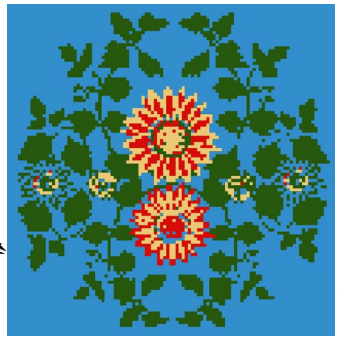

***Figure 2.*** One of the motifs created in Adobe Photoshop

***Figure 3.*** 3D dress simulation

***Figure 4.*** Sunflower dress

## References


Brown, T. (2008). Design thinking. *Harvard Business Review*, *86*(6), 84.

Dobson, J. (2018). *Making kimono and Japanese clothes*. Batsford Books.

Hendriks, E. & Miliani, C. (2019). Van Gogh's Sunflowers: Research in context. In E. Hendriks, M. Vellekoop, M. van Bommel & M. Geldof (Eds.), *Van Gogh's Sunflowers illuminated: Art meets science* (pp. 11-20). Amsterdam: Amsterdam University Press.

Hwang-Shin, S. J., & Lee, H. (2020). The use of 3D virtual fitting technology: comparison between sourcing agents contractors and domestic suppliers in the apparel industry. *International Journal of Fashion Design, Technology and Education*, *13*(3), 300-307.

Kim, H. J., & DeLong, M. R. (1992). Sino-Japanism in Western women's fashionable dress in Harper's Bazar, 1890-1927. *Clothing and Textiles Research Journal*, *11*(1), 24-30.

Rabinovitch-Fox, E. (2015). [Re] Fashioning the New Woman: Women's dress, the oriental style, and the construction of American feminist imagery in the 1910s. *Journal of Women's History*, *27*(2), 14-36.